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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/038,562	03/11/1998	HONGYANG CHAO	63345	8464

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EXAMINER	
JOHNSON, TIMOTHY M	
ART UNIT	**PAPER NUMBER**
2625	

DATE MAILED: 11/25/2003

28

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/038,562	CHAO ET AL.	
	Examiner	Art Unit	
	Timothy M Johnson	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *1-15 and 22-32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

RCE – Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 26, 2003 has been entered.

Claim Objections

2. Claim 20 is objected to because of the following informalities:

"as" on the last line of claim 20 should probably be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C 112:

The specification shall contain a written disclosure of the invention, and the manner and process of making an using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 16-20 are rejected under 35 U.S.C. 112, first paragraph, because the

specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention.

Claim 16, lines 5-6, and claim 20, lines 4-5, recite selecting a wavelet transform technique "from a lifting scheme and a correction method". The disclosure does not appear to provide for selecting between or from two different types of wavelet transform techniques.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolarov et al., 6,144,773, and Chui et al., 5,604,824.

For claim 16, image compression system comprising an image source providing an image, the image having pixels, each pixel having a finite number of bits is provided by Kolarov in at least the fourth full paragraph in c. 12 explicitly providing for a pixels of a finite number of bits using 8 or 12 bits per pixel, where the source is a computer file (Fig. 3a, block 303), where the source of the file can be a graphics image or X-ray, for example. A compressor coupled to the image source is indicated by at least Fig. 3a,

block, 303, indicating a source, and block 326 of Fig. 3a, providing for compression, and most of the first few paragraphs of the Detailed Description in cols. 7-8, including c. 7, lines 35-47. The compressor configured to generate a compressed image based on an integer wavelet transform is provided by Kolarov is provided by at least the lifting scheme wavelet transform, which is an integer wavelet transform, and for further evidence of an integer wavelet transform, see Chui in at least the abstract.

Selecting a wavelet transform from a lifting scheme and a correction method is considered provided by Kolarov, where the claim is understood not to actually select, but rather is understood to be one of either the lifting scheme or the correction method. Kolarov provides for at least the lifting scheme, and is considered to also provide for the correction method, which is understood from the Applicant's specification on page 38, lines 13-15 by the S+P transform used by Said, which is incorporated by reference into Kolarov in at least the last full paragraph in c. 8 (A New Fast and Efficient Image Codec Based on Set Partitioning in Hierarchical Trees" indicating the conventionality of the S+P transform). However, construing the claim as actually selecting between different wavelet transforms, Kolarov already teaches both the lifting scheme and the correction method, but does not necessarily select between the two. Chui provides for the conventionality of selecting between different wavelet transforms in at least Fig. 2, blocks 48a, 48b, and 48c, and c. 15, lines 33-52. It would've been obvious to one having ordinary skill in the art at the time the invention was made to select between different wavelet transforms, since Chui provides for optimality of at least the appropriate compression technique, compression ratio, speed, and other parameters as

a result of the selection.

Wherein wavelet coefficients of the integer wavelet transform have a finite number of bits that are no greater in number than the highest count for the number of bits for any of the pixels of the image is provided by Kolarov in at least Figs. 3a, and 4a-4c, particularly, step 326 in Fig. 3a, and c. 19, line 19 – c. 20, line 13.

For claim 17, the image compression system of claim 16, wherein the compressor quantizes a wavelet transformed image to produce the compressed image is provided by Kolarov in at least the first full paragraph in c. 8, and by Chui in block 50 of Fig. 2 and c. 15, lines 53-59, for example.

For claim 18, the image compression system of claim 16, wherein the compressor entropy encodes (e.g. Huffman or arithmetic) a quantized image to produce the compressed image is provided by Kolarov in the third full paragraph in c. 5, by any one of a number of different well known entropy coders, and by Chui in c. 15, line 66 – c. 16, line 1 with respect to Fig. 2, block 52, as implemented by apparatus block 64 in Fig. 4, which can be any one of several entropy coders as noted in c. 17, lines 51-65.

For claim 19, the image compression system of claim 16, wherein the compressor performs a color transformation to produce the compressed image is not explicitly provided by Kolarov, but is conventional and well known and is provided by Chui in c. 9, lines 26-44, where the image is color transformed from any one of several

different image formats into RGB. Additionally, a color transform can also be construed as the color transform reduction process of Chui in c. 10, line 55 – c. 11, line 2, where a dithering process and mapping colors from a color histogram are certainly color transformations as well, and which transforms provide for further compression as noted in c. 15, lines 10-31. It would've been obvious to one having ordinary skill in the art at the time the invention was made to use a color transformation, since this can provide for "a significant amount of compression already achieved" as taught by Chui.

For claim 20, see the rejection of at least claim 16. An image decompression system comprising a compressed image source providing a compressed image is provided by Kolarov in at least the paragraph bridging cols. 5-6 and the first few paragraphs in the Detailed Description in c. 7, and by Chui in at least c. 37, lines 20-50. A decompressor coupled to the compressed image source, the decompressor configured to generate a decompressed image based on an integer inverse wavelet transform is also provided by Kolarov in at least the paragraph bridging cols. 5-6, and Chui provides for this and further for being derived using a technique selected from one of more than one method where cited above for claim 16, and in c. 4, lines 47- 60; c. 27, lines 55-61; c. 36, lines 60-67; c. 37, line 49 – c. 39, line 22; c. 39, lines 8-22; c. 40, lines 10-12 and lines 48-31; c. 41, lines 41-51; c. 42, lines 27-28; c. 45, lines 4-15; Fig. 17, blocks 134a, 134b, and 134c. The particular technique is selected in at least c. 15, lines 39-52 and the paragraph bridging cols. 38-39, with respect to Fig. 2, blocks 48a, 48b, and 48c (compression), and Fig. 17, blocks 134a, 134b, and 134c

(decompression). That the lifting scheme and a correction method are used in a decompression system are obvious for the same reasons noted above for claim 16, of which arguments apply here and are incorporated herein. Similarly, Kolarov, who provides for the conventional and well known lifting scheme noted above, also provide for an inverse transform and decompression in general in accordance with the lifting scheme in at least Fig. 3b, and again, the decompression is basically the reverse of the compression process as noted by Kolarov in at least c. 15, lines 15-25.

Wherein wavelet coefficients of the integer wavelet transform have a finite number of bits that are no greater in number than a finite number of bits for any of the pixels of the decompressed image is not explicitly provided by Chui., but is provided by Kolarov as noted above.

For claim 21, see the rejection of at least claims 16 and 20, which also apply herein. Additionally, a computer readable medium storing a computer program for directing a computer system to perform image compression, quantizing, entropy coding, and outputting a file is provided by Kolarov in at least the four full paragraphs in c. 7, the paragraph bridging cols. 7-8, and Figs. 3a-3b.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy M. Johnson whose telephone number is (703) 306-3096, or the Supervisory Patent Examiner, Bhavesh M. Mehta, whose telephone number is (703) 308-5246.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone numbers are (703) 305-4700, (703) 305-4750, (703) 305-9600, or (703) 305-3800, or Customer Service at (703) 306-0377.

The Group Art Unit FAX number is 703-872-9306.

Timothy M. Johnson
Patent Examiner
Art Unit 2625
November 24, 2003

TIMOTHY M. JOHNSON
PRIMARY EXAMINER